



**THE DATASHEET OF
SMD1812P050TSA**



SMD1812

This product is not recommended for new designs. Please refer to Littelfuse No. 1812L.



SMD Type, 6 V - 60 V

Standard
UL 1434 1st Edition
CSA C22.2 No. 0 CSA TIL No. CA-3A

Approvals
cULus Recognition
TÜV

Features

This product line is also designed for surface-mount applications. The products with 1812-mil footprint range in hold currents from 0.1 A to 2.6 A and voltage from 6 V to 60 V. These devices are suited for PC mother board, computer peripheral products and general electronics applications. Suitable for reflow soldering.

Specifications

Packaging
A Blister tape and reel Ø 178 mm

Materials
Terminals: Solder-plated copper
TS: Solder Material: 63/37 SnPb
TF: Lead free plating on request

Max. Device Surface Temperature in Tripped State
125 °C

Operating / Storage Temperature
-40 °C to +85 °C (consider derating)

Humidity Ageing
+85 °C, 85 % R.H., 1000 hours, ± 5 % typical resistance change

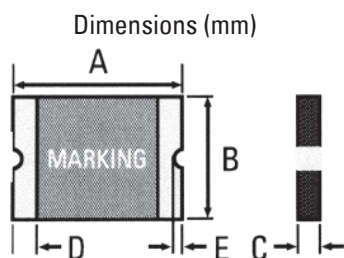
Vibration
MIL-STD-883C, Method 2007.1, Condition A, no change

Thermal Shock
MIL-STD-202F, Method 107G
+85 °C to -40 °C 20 times, -30 % typical resistance change

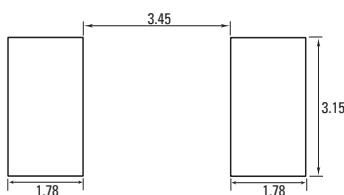
Solderability
Meets EIA Specification RS186-9E,
ANSI/J-STD-002, Category 3
Reflow only

Solvent Resistance
MIL-STD-202, Method 215, no change

Marking
"P", Part Code



Solder pad Layout (mm)



* only type "TF"

| Model | A | | B | | C | | D | E | | packaging quantity |
|---------------------|------|------|------|------|------|------|------|------|------|--------------------|
| | Min | Max | Min | Max | Min | Max | | Min | Max | |
| SMD1812P010TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500 |
| SMD1812P014TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.95 | 0.30 | 0.25 | 0.65 | 1,500 |
| SMD1812P020TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.55 | 1.00 | 0.30 | 0.25 | 0.65 | 2,000 |
| SMD1812P050TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.50 | 0.75 | 0.30 | 0.25 | 0.50 | 2,000 |
| SMD1812P075TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.50 | 0.75 | 0.30 | 0.25 | 0.50 | 2,000 |
| SMD1812P075TS/TF/24 | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.55 | 0.30 | 0.25 | 0.65 | 1,500 |
| SMD1812P110TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.50 | 0.75 | 0.30 | 0.25 | 0.50 | 2,000 |
| SMD1812P110TS/TF/16 | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500 |
| SMD1812P125TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.50 | 1,500 |
| SMD1812P150TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.50 | 1,500 |
| SMD1812P150TF/12 | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500 |
| SMD1812P160TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500 |
| SMD1812P160TS/TF/8 | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500 |
| SMD1812P200TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.55 | 0.30 | 0.25 | 0.50 | 1,500 |
| SMD1812P260TS/TF | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.60 | 0.30 | 0.25 | 0.50 | 1,000 |

Permissible continuous operating current is ≤ 100 % at ambient temperature of 20 °C (68 °F).

| Model (A) | I _{hold} (A) | I _{trip} (A) | V _{max. dc} (V) | I _{max.} (A) | max. time to trip (s @ A) | P _{d max.} (W) | Resistance | | | Approvals | |
|---------------------|-----------------------|-----------------------|--------------------------|-----------------------|---------------------------|-------------------------|-----------------------|-----------------------|-------------------------|-----------|-----|
| | | | | | | | R _{min.} (Ω) | R _{typ.} (Ω) | R _{l max.} (Ω) | cULus | TÜV |
| SMD1812P010TS/TF | 0.10 | 0.30 | 30 | 10/100* | 1.50 @ 0.50 | 0.8 | 1.600 | 7.000 | 15.000 | • | • |
| SMD1812P014TS/TF | 0.14 | 0.34 | 60 | 10/100* | 0.15 @ 1.50 | 0.8 | 1.500 | 4.000 | 6.000 | • | • |
| SMD1812P020TS/TF | 0.20 | 0.40 | 30 | 10/100* | 0.02 @ 8.00 | 0.8 | 0.800 | 2.900 | 5.000 | • | • |
| SMD1812P050TS/TF | 0.50 | 1.00 | 15 | 40/100* | 0.15 @ 8.00 | 0.8 | 0.150 | 0.600 | 1.000 | • | • |
| SMD1812P075TS/TF | 0.75 | 1.50 | 13.2 | 40/100* | 0.20 @ 8.00 | 0.8 | 0.110 | 0.260 | 0.450 | • | • |
| SMD1812P075TS/TF/24 | 0.75 | 1.50 | 24 | 40/100* | 0.20 @ 8.00 | 0.8 | 0.110 | 0.200 | 0.290 | • | • |
| SMD1812P075TF/33 | 0.75 | 1.50 | 33 | 20 | 0.20 @ 8.00 | 0.8 | 0.110 | 0.260 | 0.400 | • | • |
| SMD1812P110TS/TF | 1.10 | 2.20 | 6 | 40/100* | 0.30 @ 8.00 | 0.8 | 0.040 | 0.120 | 0.210 | • | • |
| SMD1812P110TS/TF/16 | 1.10 | 1.95 | 16 | 40/100* | 0.50 @ 8.00 | 0.8 | 0.060 | 0.120 | 0.180 | • | • |
| SMD1812P110TF/33 | 1.10 | 1.95 | 33 | 20 | 0.50 @ 8.00 | 0.8 | 0.060 | 0.120 | 0.200 | • | • |
| SMD1812P125TS/TF | 1.25 | 2.50 | 15 | 40/100* | 0.40 @ 8.00 | 0.8 | 0.070 | 0.160 | 0.250 | • | • |
| SMD1812P150TS/TF | 1.50 | 3.00 | 6 | 40/100* | 0.50 @ 8.00 | 0.8 | 0.040 | 0.070 | 0.110 | • | • |
| SMD1812P150TF/12 | 1.50 | 3.00 | 12 | 40/100* | 0.50 @ 8.00 | 0.8 | 0.040 | 0.070 | 0.110 | • | • |
| SMD1812P150TF/24 | 1.50 | 3.00 | 24 | 20 | 1.50 @ 8.00 | 0.8 | 0.040 | 0.070 | 0.120 | p | • |
| SMD1812P160TS/TF | 1.60 | 2.80 | 6 | 40/100* | 1.00 @ 8.00 | 0.8 | 0.030 | 0.066 | 0.100 | • | • |
| SMD1812P160TS/TF/8 | 1.60 | 2.80 | 8 | 40/100* | 1.00 @ 8.00 | 0.8 | 0.030 | 0.066 | 0.100 | • | • |
| SMD1812P160TF/12 | 1.60 | 2.80 | 12 | 20/100* | 1.00 @ 8.00 | 0.8 | 0.030 | 0.066 | 0.100 | • | • |
| SMD1812P200TS/TF | 2.00 | 3.50 | 8 | 40/100* | 2.00 @ 8.00 | 0.8 | 0.020 | 0.040 | 0.060 | • | • |
| SMD1812P260TS/TF | 2.60 | 5.20 | 6 | 40/100* | 2.50 @ 8.00 | 0.8 | 0.015 | 0.030 | 0.047 | • | • |

* Approvals for 100 A pending

NOTE:

I_{hold} = Hold current: maximum current device will pass without tripping in 20 °C still air.
I_{trip} = Trip current: minimum current at which the device will trip in 20 °C still air.
V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max}).
I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max}).

P_d = Power dissipated from device when in the tripped state at 20 °C still air.

R_{min} = Minimum resistance of device in initial (un-soldered) state.

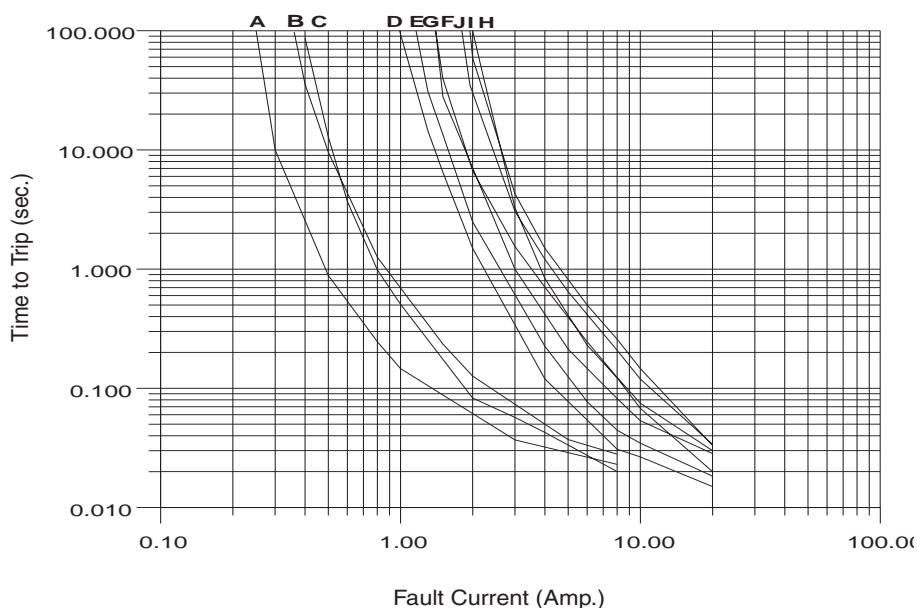
R_{l max} = Maximum resistance of device at 20 °C measured one hour after tripping for 20 s.

Caution: Operation beyond the specified rating may result in damage and possible arcing and flame. Specifications are subject to change without notice

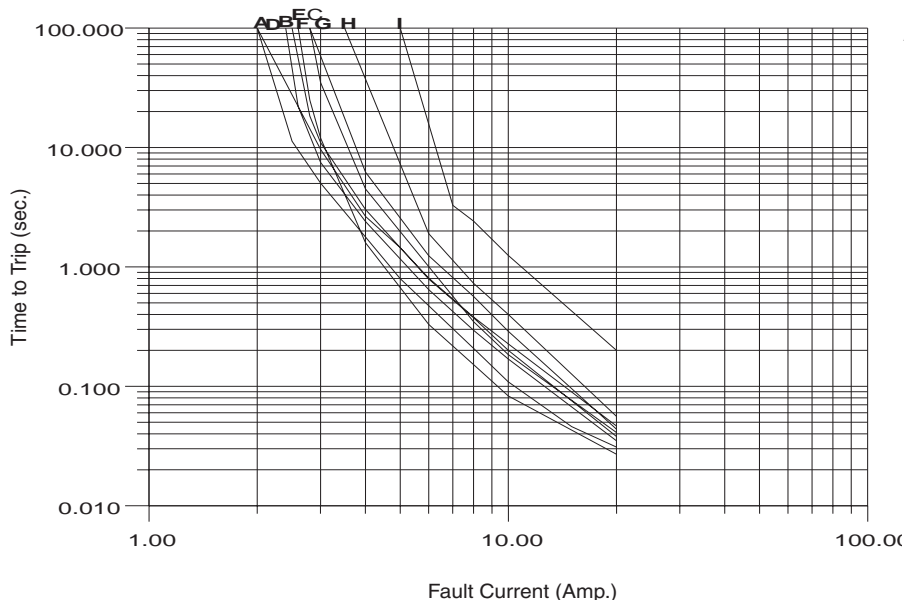
Please choose TS for SnPb and TF for Sn plating

| Order Information | Qty. | Order-Number | Model | Packaging |
|-------------------|------|--------------|-------|-----------|
|-------------------|------|--------------|-------|-----------|

SMD1812



- A: SMD1812P010TS/TF
- B: SMD1812P014TS/TF
- C: SMD1812P020TS/TF
- D: SMD1812P050TS/TF
- E: SMD1812P075TS/TF
- F: SMD1812P075TS/TF/24
- G: SMD1812P075TF/33
- H: SMD1812P110TS/TF
- I: SMD1812P110TS/TF/16
- J: SMD1812P110TF/33





- A: SMD1812P125TS/TF
- B: SMD1812P150TS/TF
- C: SMD1812P150TF/12
- D: SMD1812P150TF/24
- E: SMD1812P160TS/TF
- F: SMD1812P160TS/TF/8
- G: SMD1812P160TF/12
- H: SMD1812P200TS/TF
- I: SMD1812P260TS/TF

Thermal Derating Chart

| Model | Ambient Operation Temperature - I_{hold} (A) | | | | | | | | |
|---------------------|--|--------|------|-------|-------|-------|-------|-------|-------|
| | -40 °C | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C |
| SMD1812P010TS/TF | 0.16 | 0.14 | 0.12 | 0.01 | 0.08 | 0.07 | 0.06 | 0.05 | 0.03 |
| SMD1812P014TS/TF | 0.23 | 0.19 | 0.17 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.06 |
| SMD1812P020TS/TF | 0.29 | 0.26 | 0.23 | 0.20 | 0.17 | 0.15 | 0.14 | 0.12 | 0.10 |
| SMD1812P050TS/TF | 0.77 | 0.68 | 0.59 | 0.50 | 0.44 | 0.40 | 0.37 | 0.33 | 0.29 |
| SMD1812P075TS/TF | 1.15 | 1.01 | 0.88 | 0.75 | 0.65 | 0.60 | 0.55 | 0.49 | 0.43 |
| SMD1812P075TS/TF/24 | 1.06 | 0.95 | 0.84 | 0.75 | 0.60 | 0.55 | 0.50 | 0.45 | 0.37 |
| SMD1812P110TS/TF | 1.59 | 1.43 | 1.26 | 1.10 | 0.95 | 0.87 | 0.80 | 0.71 | 0.60 |
| SMD1812P110TS/TF/15 | 1.58 | 1.43 | 1.27 | 1.10 | 0.95 | 0.85 | 0.77 | 0.71 | 0.58 |
| SMD1812P110TS/TF/16 | 1.58 | 1.43 | 1.27 | 1.10 | 0.95 | 0.85 | 0.77 | 0.71 | 0.58 |
| SMD1812P125TS/TF | 2.00 | 1.75 | 1.52 | 1.25 | 1.00 | 0.95 | 0.90 | 0.75 | 0.53 |
| SMD1812P150TS/TF | 2.30 | 2.03 | 1.76 | 1.50 | 1.25 | 1.10 | 1.00 | 0.80 | 0.60 |
| SMD1812P160TS/TF | 2.27 | 2.05 | 1.83 | 1.60 | 1.35 | 1.25 | 1.15 | 1.00 | 0.85 |
| SMD1812P200TS/TF | 3.08 | 2.71 | 2.35 | 2.00 | 1.80 | 1.60 | 1.50 | 1.07 | 0.80 |
| SMD1812P260TS/TF | 4.00 | 3.52 | 3.06 | 2.60 | 2.34 | 2.08 | 1.95 | 1.39 | 1.04 |

Looking for pricing, stock, or lifecycle information?

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-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management